

APPENDIX E CULTURAL RESOURCE ASSESSMENT

This appendix contains detailed information on the cultural resources that may be impacted by the conveyance or transfer of these tracts and the contemplated land uses. It provides a discussion of the studies that have been conducted to identify cultural resources, a description of the recorded cultural resources on each tract, background information on cultural resource types, an overview of the past and continued human use of the area, and a discussion of the traditional cultural property (TCP) consultation process.

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E.1 Introduction

This appendix provides additional information used in assessing the potential impacts to cultural resources occurring as a result of the transfer or conveyance of land parcels at LANL. It provides background on cultural resource studies that have been conducted in the LANL area and the methods used to identify cultural resources. A more detailed cultural chronology is provided to supplement the discussion in Chapter 3, Section 3.2.8 of the CT EIS. This chronology, in table form, summarizes the long history of human use of the LANL area. In addition, the types of resources that have been recorded in the region of influence (ROI) are described in greater detail.

E.2 Previous Cultural Resource Studies

Cultural resource studies of the LANL area include prehistoric resource studies, historic resource studies, and studies of TCPs. Prehistoric resource studies include reconnaissance, survey, and excavation of archaeological resources. Historic resource studies also include inventories of archaeological resources, as well as research into buildings and structures that are associated with historic people or events or are architecturally important. TCP studies include research and consultation to identify places of ongoing traditional use or of cultural or religious significance to contemporary groups. A more detailed review of previous studies is presented in Appendix E of the LANL SWEIS (DOE 1999c).

A number of previous cultural resource inventories have been conducted at LANL that include all or portions of the tracts considered for conveyance or transfer. Most of these studies have been conducted in the past 10 years in compliance with Section 106 of the *National Historic Preservation Act* (NHPA) for specific undertakings related to construction, decontamination and demolition, environmental studies, and environmental restoration. To provide information for the CT EIS, all 10 proposed tracts have now been completely inventoried for prehistoric and historic resources.

As part of the LANL SWEIS study, a TCP study was conducted that involved consultations with 19 Native American tribes and two Hispanic communities to identify cultural resources in the LANL region important to them. Contacts were made initially with 23 Native American tribes; however, four chose not to participate in the consultations. All of the consulting groups stated that they had at least some TCPs present on or near LANL; however, specific locations were not identified. Legal counsel for San Ildefonso Pueblo has indicated that TCPs are present on four of the tracts. Consultation with potentially interested tribes is not included in the results of this CT EIS. However, extensive consultations will be completed prior to conveyance and transfer of any proposed tracts (see Chapters 16 and 17).

E.3 Research Methods: Identification of Cultural Resources

E.3.1 Prehistoric and Historic Resources

Information for this CT EIS regarding known prehistoric and historic resources on tracts considered for transfer or conveyance was obtained from several sources. The principal source of information was the LANL Cultural Resource Management Team (CRMT), which maintains comprehensive hardcopy records and electronic databases of cultural resources located on LANL lands. Results of CRMT surveys of the tracts were reviewed and utilized for impact analyses (DOE 1998d).

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E.3.2 Traditional Cultural Properties

The LANL CRMT also was able to provide some information on TCPs located within or near the 10 land tracts. This information was obtained by them during previous environmental studies through consultations with nearby tribes. Records of the LANL SWEIS ethnographic research and consultations were reviewed for this CT EIS to determine any previously recorded concerns for TCPs located in or near the land tracts.

As stated earlier, consultations with Native American tribes were not completed for the CT EIS; however, consultations will be completed prior to conveyance and transfer of any proposed tracts (see Chapters 16 and 17). These consultations will be conducted to identify the presence and locations of TCPs within the ROI, to assess potential direct and indirect impacts to these TCPs, and to provide recommendations for avoiding or mitigating any potential adverse impacts. As with the LANL SWEIS, 23 tribes are identified for consultation. These tribes included:

- Hopi Tribe
- Jicarilla Apache Tribe
- Mescalero Apache Tribe
- Navajo Nation
- Pueblo of Acoma
- Pueblo of Cochiti
- Pueblo of Isleta
- Pueblo of Jemez
- Pueblo of Laguna
- Pueblo of Nambe
- Pueblo of Picuris
- Pueblo of Pojoaque
- Pueblo of Sandia
- Pueblo of San Felipe
- Pueblo of San Ildefonso
- Pueblo of San Juan
- Pueblo of Santa Ana
- Pueblo of Santa Clara
- Pueblo of Santo Domingo
- Pueblo of Taos
- Pueblo of Tesuque
- Pueblo of Zia
- Pueblo of Zuni

The consultation process involves one to three stages, dependent upon the response of the individual tribes.

E.3.2.1 Stage 1: Initial Consultation with Potentially Interested Tribes

This stage has been completed. It involves identifying the appropriate contact, usually the director of the tribal environmental or cultural resources department, at each of the 23 tribes. Two letters have been sent to this contact, as well as to the governor/chairman/president of each tribe. The letters describe the CT EIS and the effort underway to identify TCPs, asks if the tribe has concerns for TCPs in the 10 land tracts, and offers to provide the tribe with a project briefing and a tour of the land tracts at their convenience.

E.3.2.2 Stage 2: Continued Consultation with Interested Tribes

Consultation will continue with those tribes who express a concern for TCPs potentially located within the 10 land tracts. Each interested tribe will design the culturally appropriate methods used to continue the consultation with them. These methods will include review of archaeological and environmental information pertaining to the 10 land tracts; field visits to the land tracts; and interviews and meetings with tribal representatives, leaders, knowledgeable individuals, and

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resource specialists. Efforts will be made to locate and identify TCPs, document concerns for potential impacts to these resources, and document suggestions for measures to mitigate any potential adverse impacts. Some tribes may conduct interviews with tribal members themselves or prepare reports of their findings for submission to the DOE. All information received from the tribes will be protected with strict confidentiality. Official procedures to protect the information will be developed and followed throughout the consultation process.

E.3.2.3 Stage 3: Review of Consultation Results

Upon completion of consultation with each tribe, the tribe will be given the opportunity to review the results of the consultation. This review process will be limited to only the reference materials pertaining to that particular tribe. Review comments will be addressed and the results revised to reflect relevant comments.

E.4 Cultural Overview

Archaeological investigations in the vicinity of LANL indicate human use of the area for thousands of years. A variety of chronological schemes have been proposed as a framework to discuss the cultural history of the region. In 1954, Fred Wendorf defined five major periods for the northern Rio Grande Valley: Preceramic, Developmental, Coalition, Classic, and Historic. These period classifications, with some modifications, are still in use. The Preceramic period has been subdivided into Paleo-Indian and Archaic, based upon changes in settlement patterns and subsistence over time as reflected by material culture. The Historic period includes both Native American sites where people abandoned their homelands and changed their ways of life in response to Euro-American and other influences, and sites that reflect the European and American settlement of the Rio Grande Valley. This chronology is summarized in Table E.4-1. The number of known sites assigned to each cultural period by tract is presented in Table E.4-2. A detailed description of the chronology and culture periods is available in Appendix E of the LANL SWEIS (DOE 1999c).

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Table E.4-1. Chronological Framework Used for the LANL Cultural ROI

TIME PERIOD	DATES	CHARACTERISTICS OF PERIOD	LANL CULTURAL RESOURCES
Paleo-Indian	10,000 to 4000 B.C.	Hunter/gatherers with an emphasis on large game; use of lance-shaped projectile points.	Occasional surface finds of projectile points
Archaic	4000 B.C. to A.D. 600	Hunter/gatherers with more diverse subsistence strategy; increased plant collection, smaller (dart) projectile points, wide range of stone tools and debris and hearths found on sites. Cave and rock shelters also used.	Lithic scatters, rock features. Possible buried sites.
Developmental	A.D. 600 to 1100	Increased sedentism and reliance on agriculture; shift in dwelling size and complexity from pithouses to multiple rooms and adobe and masonry structures; ceramics and milling tools common, smaller (arrow) points used.	Some pithouse, adobe and crude masonry structures close to the Rio Grande in the vicinity of Chaquihui Mesa and Lower Water Canyon.
Coalition	A.D. 1100 to 1325	Increased agricultural focus, larger communities—typically 30 rooms but later sites larger with plazas, increased use of adobe; refinement of ceramics.	Increased site density. Most pueblo ruins recorded at LANL date to this period. Sites are distributed widely, primarily on the mesa tops.
Classic	A.D. 1325 to 1600	Increased agricultural focus with ditch irrigation systems, multiple story masonry dwellings and associated one- or two-room isolated structures. Droughts during the Late Classic led to abandonment of many Pueblos.	Consolidation of populations at Navawi, Otowi, Tsankawi, and Tsirege (Tsirege and Otowi are located on DOE lands). Abandonment of settlements on the plateau by A.D.1600.
Spanish Colonial	A.D. 1600 to 1849	Population loss among Native groups; Spanish and (later) Mexican rule; Pueblo groups given land grants. Spanish and American goods traded in.	Seasonal use probable, but not documented.
Early U.S. Territorial/ Statehood	A.D. 1849 to 1942	U.S. takes control, railroad arrives, increase in population and in mining, homesteading, and ranching activities.	Structural remains, agricultural and ranching features.
Nuclear Energy	A.D. 1943 to Present	Los Alamos Science Laboratory established for research and development of nuclear weaponry during WW II; continuing through the Cold War. Considerable new construction and population increase in Los Alamos area.	Historic structures.

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Table E.4-2. Cultural Sites Dating to the Cultural Periods By Tract

Land Tract	CULTURAL PERIODS										TOTAL
	Paleo-Indian	Archaic	Developmental	Coalition	Classic	Unknown Prehistoric	Spanish Colonial	U.S. Territorial, Statehood	Nuclear Energy	Unknown Historic	
Rendija Canyon		2		7	23	18		3		2	55
DOE LAAO									2		2
Miscellaneous Site 22											0
Miscellaneous Manhattan Monument									1		1
DP Road				1					2		3
Technical Area 21				1		1		1	40	1	44
Airport		1		2					3		6
White Rock Y	1	5		21	15	9		3	1	1	56
Technical Area 74		4		54	22	29		2	1		112
White Rock				4					1		5
TOTAL	1	12	0	90	60	57	0	9	51	4	284

Note: Some cultural sites were used during multiple cultural periods. The totals show the number of cultural periods represented, not the number of sites. The number of sites by tract can be found in the individual tract discussions, Chapters 5 through 14 of this CT EIS.

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E.5 Description of Resources in the Region of Influence

This section describes the kinds of resources recorded in the tracts considered for transfer or conveyance. Certain resource types, such as buried archaeological sites or unidentified TCPs, are not likely to be identified during survey, so there is a potential for undiscovered resources on these tracts.

E.5.1 Prehistoric Resources

A total of 190 prehistoric archaeological sites have been recorded within the tracts considered for transfer. Preliminary eligibility evaluations have been made for all of these sites, with 140 sites evaluated as eligible for inclusion in the National Register of Historic Places (NRHP). There are 32 sites that are considered potentially eligible, and 18 have been evaluated as not eligible for nomination to the NRHP. Table E.5.1-1 summarizes the types of resources found on prehistoric sites located in each tract. These resource types are defined further in the following paragraphs.

Table E.5.1-1. Prehistoric Archaeological Resources by Tract

Land Tract	PREHISTORIC RESOURCE TYPES									TOTAL
	Simple Pueblos	Complex Pueblos	Rock Shelters, Cavates	Rock Art	Water Control, Game Traps	Trails, Steps	Garden Plots	Masonry Features, Rubble	Artifact Scatters, Rock Rings	
Rendija Canyon	37				1			5	5	48
DOE LAAO										0
Miscellaneous Site 22										0
Miscellaneous Manhattan Monument										0
DP Road			1							1
Technical Area 21	1		1							2
Airport	1								1	2
White Rock Y	8	1	7	2			2		18	38
Technical Area 74	51	4	11	2	1	3	8	4	17	101
White Rock	4				2				1	7
TOTAL	102	5	20	4	4	3	10	9	42	199

Note: An archaeological site may have multiple types of resources present on it. The totals represent the number of resource types, not the number of sites. The number of sites by tract can be found in the individual tract discussions, Chapters 5 through 14 of the CT EIS.

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E.5.1.1 Simple Pueblos

One hundred two simple Pueblos were identified on the tracts considered for transfer or conveyance. Simple Pueblos include single-resident or small-scale multiple-resident units, associated features, and artifact scatters.

E.5.1.2 Complex Pueblos

Five complex Pueblos were identified on the tracts considered for transfer or conveyance. Complex Pueblos include multiple residential structures or units with public areas or structures such as plazas, towers, or kivas.

E.5.1.3 Rock Shelters and Cavates

Twenty rock shelters and cavates were identified on the tracts considered for transfer or conveyance. Rock shelters are naturally formed overhangs or indentations in a rockface that have been used for human shelter. Rock shelters may be modified with structural elements. Cavates are habitation rooms carved out of volcanic tuff or other soft material.

E.5.1.4 Rock Art

Four rock art sites were identified on the tracts considered for transfer or conveyance. Rock art includes petroglyphs, which are designs scratched, pecked, or scraped into a rock surface and pictographs, which are designs drawn in pigment on a rock surface.

E.5.1.5 Water Control Features and Game Traps

Four water control features and game traps were identified on the tracts considered for transfer or conveyance. Water control sites include small prehistoric features for the control or collection of water, such as irrigation ditches, cisterns, and retention dams. Game traps include a variety of features related to hunting by driving game over a cliff or into an enclosed area.

E.5.1.6 Trails or Steps

Three trails or stair-step resources were identified on the tracts considered for transfer or conveyance. Trails and steps show evidence of human use or modification for passage across the land or access to different levels.

E.5.1.7 Garden Plots

Ten garden plots were identified on the tracts considered for transfer or conveyance. Garden plots are indicated by evidence of terracing or boundaries.

E.5.1.8 Masonry Features and Rubble

Nine masonry features or rubble sites were identified on the tracts considered for transfer or conveyance. Masonry features and rubble sites are poorly defined or undefined rock alignments or concentrations of material that may represent prehistoric structural or feature remains.

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E.5.1.9 Artifact Scatters and Rock Rings

Forty-two artifact scatters and rock rings were identified on the tracts considered for transfer or conveyance. Artifact scatters contain no formal habitation structures and include lithic debris from chipped stone manufacture or use, groundstone tools, or ceramic sherds. Rock ring sites contain simple rock rings, hearths, or concentrations of fire-cracked rock.

E.5.2 Historic Resources

A total of 64 historic sites have been recorded within the tracts considered for transfer or conveyance. Preliminary eligibility evaluations have been made for all, with 5 sites evaluated as eligible for inclusion in the NRHP. There are 55 sites that are considered potentially eligible, and 4 have been evaluated as not eligible for nomination to the NRHP. Table E.5.2-1 summarizes the types of resources found on historic sites located in each tract. These resources are described further in the following paragraphs.

Table E.5.2-1. Historic Resources by Tract

Land Tract	HISTORIC RESOURCE TYPES					TOTAL
	Homestead, Ranching, Agriculture Features	Historic Artifact Scatters	Historic Trails	Historic Native American Resources	LANL Buildings, Structures, Objects	
Rendija Canyon	2		1	2		5
DOE LAEO					2	2
Miscellaneous Site 22						0
Miscellaneous Manhattan Monument					1	1
DP Road					2	2
Technical Area 21	1		1		40	42
Airport					3	3
White Rock Y	3		1		1	5
Technical Area 74	1		1		1	3
White Rock					1	1
TOTAL	7	0	4	2	51	64

Note: A historic site may have multiple types of resources present. The totals represent the number of resource types, not the number of sites. The number of sites by tract can be found in the individual tract discussions, Chapters 5 through 14 of the CT EIS.

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E.5.2.1 Homestead, Ranching, and Agricultural Features

Seven homestead, ranching, and agricultural resources were identified on the tracts considered for transfer or conveyance. Homestead, ranching, and agricultural resources include historic era homestead and ranch structural remains and associated outbuildings, fences, roads, equipment, agricultural fields, and other features and refuse scatters.

E.5.2.2 Artifact Scatters

No historic artifact scatters were identified on the tracts considered for transfer or conveyance. Historic artifact scatters are sites that are not directly associated with ranches or homesteads that contain historic era refuse such as cans, bottles, or other objects.

E.5.2.3 Historic Trails

Four historic trails were identified on the tracts considered for transfer or conveyance. These trails often are still used for recreational purposes.

E.5.2.4 Historic Native American Resources

Two historic resources used by Native Americans were identified on the tracts considered for transfer or conveyance. Both of these resources are rock rings used in the construction of tipis or wickiups.

E.5.2.5 Buildings, Structures, and Objects

Fifty-one LANL buildings, structures, and objects were identified on the tracts considered for transfer or conveyance. LANL buildings, structures, and objects may be architecturally distinctive or associated with historic events such as the Manhattan Project, World War II, the development of nuclear energy, and the Cold War.

E.5.3 Traditional Cultural Properties

A TCP is a place or object that is significant to a particular living community. This significance is “derived from the role the TCP plays in the community’s historically rooted beliefs, customs, and practices” (Parker and King 1990). TCPs are associated with the cultural practices and beliefs that are based in a community’s history or important in maintaining the cultural identity of the community. TCPs are used within social, spiritual, political, and economical contexts, and thus, are essential to the preservation and viability of a culture. TCPs are not limited to ethnic minority groups; rather, Americans of every ethnic origin have properties to which they ascribe traditional cultural value. In northern New Mexico, Hispanic culture and Native American groups in particular have maintained traditional communities, practices, beliefs, and subsistence patterns.

Several general types of TCPs have been identified by Native American and Hispanic cultures in northern New Mexico. These traditional cultures have had many generations of interaction with each other and often have overlapping subsistence, artistic, and religious practices with unique cultural importance attached to similar kind of sites. TCPs located in and near LANL are divided into five general categories. Each of these categories represents specific cultural and physical sensitivity and susceptibility to adverse impacts. A detailed description of the categories can be found in Appendix E of the LANL SWEIS (DOE 1999c). These categories include:

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- **Ceremonial and Archaeological Sites:** Ceremonial and archaeological sites include Native American shrines, ancestral villages, petroglyphs, places where religious ceremonies are conducted, and Hispanic shrines and moradas. All prehistoric archaeological sites are also considered sacred according to certain Pueblo groups.
- **Natural Features:** A variety of natural features in the landscape such as mountain peaks, lakes, springs, or distinctive rock formations are considered TCPs by traditional cultures in the LANL area.
- **Ethnobotanical Gathering Sites:** Native Americans and traditional Hispanic communities use a variety of wild plants for food and medicine. Certain plants are also used in traditional ceremonies.
- **Artisan Material Gathering Sites:** The gathering of various raw materials used in the production of artistic and utilitarian items is important in the continuation of traditional arts among Native American and Hispanic communities. These materials include a variety of dye plants and minerals; plant fibers for weaving; woods for carving, construction, and drummaking; and clay for adobe construction and pottery making.
- **Traditional Subsistence Features:** Traditional subsistence features include community-maintained irrigation system (acequias), traditional trails, gathering and hunting areas, traditionally used fields, grazing areas, and firewood-gathering sites. Land grants by the Spanish and Mexican governments may be considered TCPs in that all of the parts (for example, individual holdings, commons, acequias, and village) are interrelated.

During the LANL SWEIS TCP study, 19 of the 23 Native American groups and two Hispanic groups indicated the presence of TCPs from all five categories within the LANL region. However, no specific locations or features were identified. The number of consultations indicating TCPs are summarized in Table E.5.3-1. No consultations were conducted for the CT EIS; however, consultations will be completed prior to conveyance and transfer of any of the proposed tracts. This decision was made based on the limited amount of time to prepare the CT EIS and the DOE's concern to conduct a thorough consultation. The Pueblo of San Ildefonso has indicated, in general terms, that TCPs are present on the Rendija Canyon, White Rock Y, TA 74, and White Rock Tracts.

Table E.5.3-1. Number of Consultations During the LANL SWEIS TCP Study Indicating TCPs on or near LANL Property

	CEREMONIAL AND ARCHAEOLOGY SITES	NATURAL FEATURES	ETHNO- BOTANICAL SITES	ARTISAN MATERIAL SITES	SUBSISTENCE FEATURES
Number of Consultations	15	14	10	7	8

Source: DOE 1999c